CLAIMS

1. A color display device for displaying a more-than-three primary color image, the device comprising a driver control module to controllably activate one or more drivers of an array of sub-pixel elements of at least four primary colors based on image data representing pixels of said color image in terms of at least three primary colors.

2. The device of claim 1, wherein said driver control module is able to generate one or more driver signals for activating said drivers based on one or more display attributes related to said display device and one or more image attributes related to said color image.

3. The device of claim 2, wherein said driver control module comprises:

    a conversion module for converting said image data into converted sub-pixel data representing said color image in terms of four or more primary colors; and

    a controller to control said conversion module to convert said image data based on said one or more display-attributes and said one or more image-attributes.

4. The device of claim 3, wherein said conversion module comprises:

    a first converter for converting said image data into intermediate sub-pixel data of four or more primary colors; and

    a second converter for converting said intermediate sub-pixel data into said converted sub-pixel data, based on at least one of said display attributes and image attributes.

5. The device of claim 4, wherein said second converter is able to convert said intermediate sub-pixel data using at least one conversion matrix, which is based on at least one of said display attributes and image attributes.

6. The device of claim 3, wherein said conversion module comprises:

a first converter for converting said image data into first intermediate sub-pixel data of four or more primary colors;

a second converter for converting said image data into second intermediate sub-pixel data of three or more primary colors; and

a combiner to combine said first and second intermediate sub-pixel data into said converted sub-pixel data,

wherein said controller is able to control at least one of said first and second converters and said combiner based on at least one of said display attributes and image attributes.

7. The device of claim 6, wherein said second converter is able to convert said image data using at least one conversion matrix, which is based on at least one of said display attributes and image attributes.

8. The device of claim 5 or 7, wherein said controller is able to determine one or more values of said conversion matrix based on a combination of said one or more display-attributes and said one or more image-attributes.

9. The device of any one of claims 5, 7 and 8, wherein said controller is able to determine one or more values of said conversion matrix based on one or more timing signals related to said image data.

10. The device of any one of claims 3-9, wherein said driver control module comprises a sub-pixel processor to process said converted sub-pixel data, wherein said controller is able to control said processor to generate a sub-pixel signal based on at least one of said image attributes and display attributes.

11. The device of claim 10 comprising an interface module for generating said driver signals based on said sub-pixel data signal.

12. The device of any one of claims 2-11 comprising a memory to store display-related data representing said one or more display attributes.

13. The device of any one of claims 2-12, wherein said one or more display-attributes comprise at least one attribute selected from the group consisting of a configuration of said sub-pixel elements within said array, a configuration of one or more defective sub-pixel elements within said array, a brightness non-homogeneity of said display device, and a color non-homogeneity of said display device.

14. The device of any one of claims 2-13, wherein said one or more image-attributes comprise one or more attributes selected from the group consisting of a perceived bit-depth of pixels of at least part of said image, a viewed smoothness of at least part of said image, a brightness uniformity of at least part of said image, a color uniformity of at least part of said image, and a rendering scheme to be applied to at least part of said image.

15. The device of any one of the preceding claims, comprising a display panel containing said driver control module and said array of sub-pixel elements.

16. The device of any one of the preceding claims, wherein said array of sub-pixel elements comprises an array of liquid crystal elements.

17. A method of displaying a more-than-three primary color image comprising controllably activating one or more drivers of an array of sub-pixel elements of at least four primary colors, based on image data representing pixels of said color image in terms of at least three primary colors.

18. The method of claim 17 comprising generating one or more driver signals for activating said drivers based on one or more predetermined display attributes related to said display device and one or more image attributes related to said color image.

19. The method of claim 18, comprising converting said image data into converted sub-pixel data representing said color image in terms of at least four primary colors.

20. The method of claim 19, wherein converting said image data comprises:

converting said image data into intermediate sub-pixel data of at least four primary colors; and

converting said intermediate sub-pixel data into said converted sub-pixel data, based on at least one of said display attributes and image attributes.

21. The method of claim 20, wherein converting said intermediate sub-pixel data comprises converting said intermediate sub-pixel data using at least one conversion matrix, which is based on at least one of said display attributes and image attributes.

22. The method of claim 19, wherein converting said image data comprises:

converting said image data into first intermediate sub-pixel data of at least four primary colors;

converting said image data into second intermediate sub-pixel data of at least three primary colors;

combining said first and second intermediate sub-pixel data into said converted sub-pixel data; and

controlling at least one of converting said image data into said first intermediate sub-pixel data, converting said image data into said second intermediate sub-pixel data, and said combining, based on at least one of said display attributes and image attributes.

23. The method of claim 22, wherein converting said image data into said second intermediate sub-pixel data comprises converting said image data using at least one conversion matrix, which is based on at least one of said display attributes and image attributes.

24. The method of claim 21 or 23 comprising determining one or more values of said conversion matrix based on a combination of said one or more display-attributes and said one or more image-attributes.

25.   The method of any one of claims 21, 23 and 24 comprising determining one or more values of said conversion matrix based on one or more timing signals related to said image data.

26.   The method of any one of claims 19-25 comprising processing said converted sub-pixel data and generating a sub-pixel signal based on at least one of said image attributes and display attributes.

27.   The method of claim 26 comprising generating said driver signals based on said sub-pixel data signal.

28.   The method of any one of claims 18-27, wherein said one or more display-attributes comprise at least one attribute selected from the group consisting of a configuration of said sub-pixel elements within said array, a configuration of one or more defective sub-pixel elements within said array, a brightness non-homogeneity of said display device, and a color non-homogeneity of said display device.

29.   The method of any one of claims 18-28, wherein said one or more image-attributes comprise one or more attributes selected from the group consisting of a perceived bit-depth of pixels of at least part of said image, a viewed smoothness of at least part of said image, a brightness uniformity of at least part of said image, a color uniformity of at least part of said image, and a rendering scheme to be applied to at least part of said image.

30.   A color display system for displaying a more-than-three primary color image, the system comprising:

        an input interface for generating image data signals representing pixels of said color image in terms of at least three primary colors; and

        a driver control module to controllably activate one or more drivers of an array of sub-pixel elements of at least four primary colors, based on said image data signals.

31.   The system of claim 30, wherein said driver control module is able to generate one or more driver signals for activating said drivers based on

one or more display attributes related to said display device and one or more image attributes related to said color image.

32.   The system of claim 31, wherein said driver control module comprises:

a conversion module for converting said image data signals into converted sub-pixel data signals representing said color image in terms of four or more primary colors; and

a controller to control said conversion module to convert said image data signals based on said one or more display-attributes and said one or more image-attributes.

33.   The system of claim 32, wherein said conversion module is able to convert said image data signals using at least one conversion matrix, which is based on at least one of said display attributes and image attributes.

34.   The system of claim 33, wherein said controller is able to determine one or more values of said conversion matrix based on a combination of said one or more display-attributes and said one or more image-attributes.

35.   The system of claim 33 or 34, wherein said controller is able to determine one or more values of said conversion matrix based on one or more timing signals related to said image data signals.

36.   The system of any one of claims 32-35, wherein said driver control module comprises a sub-pixel processor to process said converted sub-pixel data signals, wherein said controller is able to control said processor to generate a sub-pixel signal based on at least one of said image attributes and display attributes.

37.   The system of claim 36 comprising an interface module for generating said driver signals based on said sub-pixel data signal.

38.   The system of any one of claims 30-37, wherein said one or more display-attributes comprise at least one attribute selected from the group consisting of a configuration of said sub-pixel elements within said array, a configuration of one or more defective sub-pixel elements within said

array, a brightness non-homogeneity of said display device, and a color non-homogeneity of said display device.

39. The system of any one of claims 30-38, wherein said one or more image-attributes comprise one or more attributes selected from the group consisting of a perceived bit-depth of pixels of at least part of said image, a viewed smoothness of at least part of said image, a brightness uniformity of at least part of said image, a color uniformity of at least part of said image, and a rendering scheme to be applied to at least part of said image.

40. The system of any one of claims 30-39, comprising a display panel containing said driver control module and said array of sub-pixel elements.